

REMARKS

Claims 1-3 and 5-7 are pending in this application. By this Amendment, claims 1, 5 and 6 are amended. Claim 4 is canceled without prejudice to, or disclaimer of, the subject matter recited in that claim. Support for the amendments can be found in the specification and the claims as originally filed (see page 4, line 28; page 7, lines 9-16; page 8, lines 6-17 and claim 4). No new matter is added.

In view of the foregoing amendments and the following remarks, reconsideration and allowance of the claims are respectfully requested.

I. Rejections Under 35 U.S.C. §103

A. Ono

The Office Action rejects claims 1-3 and 5-7 under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0055046 to Ono et al. ("Ono"). This rejection is respectfully traversed.

Without conceding the propriety of the rejection, and in the interest of obtaining allowance, claim 1 is amended to incorporate the subject matter of non-rejected claim 4. Thus, the rejection is overcome and should be withdrawn.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Takeuchi

The Office Action rejects claims 1-4 and 6 under 35 U.S.C. §103(a) over U.S. Patent Application Publication No. 2002/0025476 to Takeuchi ("Takeuchi"). Claim 4 is canceled, rendering the rejection moot as to that claim. As to the remaining claims, this rejection is respectfully traversed.

Claim 1 recites, *inter alia*:

An alkaline storage battery having ... a separator, ...
wherein the separator comprises:
a nonwoven fabric made of a plurality of papermaking
web layers arranged in laminated form, the papermaking web
layers comprising an assembly of fibers,...and
the separator and inside of the fibers are sulfonated to
be hydrophilic by sulfuric anhydride.

(Emphasis added). Takeuchi would not have rendered obvious at least the above features of claim 1.

Claim 4, the subject matter of which is now incorporated into claim 1, recited: "The alkaline storage battery according to claim 1, wherein the separator is sulfonated to be hydrophilic by sulfuric anhydride." The Office Action, in its rejection to these features, asserts that: "The separator [of Takeuchi] comprises lithium trifluoromethane sulfonate [Claim 5]" (Office Action, page 3). However, it is respectfully asserted that the separator of Takeuchi does not comprise lithium trifluoromethane sulfonate, nor does claim 5 of Takeuchi disclose such a finding, contrary to this assertion made by the Office Action. Claim 5 of Takeuchi recites, *inter alia*, a cell "wherein said solvent is a mixture of propylene carbonate and diglyme and wherein said salt is lithium trifluoromethane sulfonate" (Takeuchi, claim 5). Thus, for at least the reasons presented below, it is respectfully asserted that not only does Takeuchi fail to disclose an alkaline storage battery having a separator, wherein the separator and inside of the fibers are sulfonated to be hydrophilic by sulfuric anhydride, but Takeuchi also does not provide any reason or rationale for one of ordinary skill in the art to have modified its electrochemical cell or battery to have included each and every feature of claim 1.

Takeuchi is directed to an autoclavable electrochemical cell or batteries for use in implantable medical devices (Takeuchi, paragraph [0001]). According to Takeuchi, existing

electrochemical cells and batteries used in implantable medical devices are deficient because they have one or more components that render the cell chemically unstable during repeated exposure to autoclave temperatures (Takeuchi, paragraph [0007]). Therefore, it is key for the electrochemical cell of Takeuchi to be able to withstand repeated exposure to autoclave environments without significant loss of capacity (Takeuchi, paragraph [0008]). To achieve such a result, Takeuchi discloses suitable electrolyte solvents with high boiling points and high conductivity, such as a mixture of diglyme and propylene carbonate, or lithium trifluoromethane sulfonate (Takeuchi, paragraphs [0009], [0015] and [0020] and claim 5).

Based on the above, Takeuchi fails to disclose, and Takeuchi does not provide any reason or rationale for one of ordinary skill in the art to have modified its electrochemical cell or battery to have included a separator comprising a plurality of papermaking web layers arranged in laminated form, the papermaking web layers comprising an assembly of fibers, wherein the separator and inside of the fibers are sulfonated to be hydrophilic by sulfuric anhydride, as recited in claim 1, without the benefit of Applicants' specification. Takeuchi merely discloses use of lithium trifluoromethane sulfonate as an electrolyte solvent, disclosing nothing about sulfonating the separator and inside of the fibers to be hydrophilic. Lithium trifluoromethane sulfonate is also a wholly different chemical composition from sulfuric anhydride, as recited in claim 1, and absent express disclosure to the contrary, one of ordinary skill in the art would have had no reason to modify the cell or battery of Takeuchi to have a separator and inside of the fibers sulfonated to be hydrophilic by sulfuric anhydride, as recited in claim 1.

Takeuchi does not disclose sulfonating the separator material. In fact, the separator material of Takeuchi's cell is chemically *unreactive*, regardless of which high boiling point/high conductivity electrolyte solution is ultimately selected for use with the electrochemical cell or battery (Takeuchi, paragraph [0017]). Nothing in Takeuchi suggests

that any component contained in the electrolyte would sulfonate the separator to be hydrophilic, nor does Takeuchi provide any reason or rationale for one of ordinary skill in the art to have modified the battery or cell of Takeuchi such that the separator and inside of the fibers are sulfonated to be hydrophilic by sulfuric anhydride, as recited in claim 1.

Conversely, the alkaline storage battery of claim 1, wherein the separator and inside of the fibers are sulfonated to be hydrophilic by sulfuric anhydride, results in both substantially improved liquid reservation, and prevention of liquid depletion (specification page 7, lines 9-16). Takeuchi does not disclose how to achieve these properties, or even that the properties could be achieved. Takeuchi does not provide the above, or any other reason or rationale for one of ordinary skill in the art to have modified Takeuchi's electrochemical cell in the exact manner necessary to obtain the claimed invention with any reasonable expectation of success.

In view of the foregoing, Takeuchi would not have rendered claim 1 obvious. The remaining claims variously depend from claim 1 and, likewise, would not have been rendered obvious by the applied reference for at least the reasons set forth above with respect to claim 1, as well as for the additional features they recite.

Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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